Province of British Columbia
Ministry of Environment

MANAGING HABITAT THROUGH GUIDELINES: HOW FAR CAN YOU GO?

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EXECUTIVE SUMMARY AND RECOMMENDATIONS

There was a general consensus among the workshop participants that guidelines for habitat management are necessary to ensure routine consideration of habitat in land management planning and land use. The proliferation of guidelines across the province caused concern. A uniform set of rules with multi-agency involvement and approval would be most workable for all parties (Ministry of Environment, Ministry of Forests and the Forest Industry).

Some existing guidelines such as the Coastal Fisheries/Forestry guidelines have been favourably received. Several guidelines for habitat management have been developed in the interior. For the most part these are operational and aim to improve on-the-ground techniques. However, some focus on strategic planning levels and obtaining a net decrease in Annual Allowable Cuts within Timber Supply Area plans. There are a range of other guidelines within B.C. such as Wildlife Tree guidelines, grizzly bear guidelines, and handbooks. The intention of the workshop was to review the development of habitat management guidelines across the province.

The workshop participants identified many unresolved issues that needed to be addressed to coordinate the development of effective habitat management guidelines. A technical committee was proposed to deal with the following:

1. Should habitat management guidelines be integrated between the various Ministry of Environment programs, Wildlife, Recreational Fisheries, and Water: How could this be achieved?

2. Should guidelines be developed separately for the Interior and the Coast? What is an ecologically reasonable and manageable geographic area within which to produce a set of guidelines?

3. Should guidelines be developed per species or per habitat type or per management activity? Or should there be some combination of these? What format would be most suitable?

4. At what point should industry be involved with the guidelines development process?

5. Can portions of the guidelines be contracted out? What can not be done outside government?

6. Having answered the above, what is a reasonable schedule and commitment of time and money to achieve habitat management guidelines?

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INTRODUCTORY REMARKS

M. Fenger
(Forester, Wildlife Branch, Victoria)

NEED FOR THIS WORKSHOP

The desire for a workshop on habitat management through guidelines was first identified at the Annual Habitat Protection Meeting held at Yellow Point on March 23-25, 1988 (Ministry of Environ. 1988b p.51). Guidelines have been an accepted method of doing business and a wealth of guidelines have been produced. The "Guidelines Workshop Background Report" (see Appendix A for a summary of contents) was a preliminary pulling together of existing guidelines.

The Coast Fisheries/Forestry (CFF) Guidelines (Ministry of For., Ministry of Environ., Fed. Dep. of Fish and Oceans and Counc. of For. Industries 1988) appear from early reports to be a success. Once the utility and acceptability of these guidelines has been assessed, guidelines for wildlife may be modeled after them. This workshop is the start of the wildlife/forestry (environment/forestry) guidelines process. With the experience gained by the CFF guidelines this should be a less formidable task. The management personnel in both government and industry who encouraged and supported the CFF guidelines are also supportive of wildlife (environment)/forestry guidelines.

This workshop should look at the broad picture of guidelines and address the direction the Ministry of Environment (MOE) should take. We should address the following questions:

1. Should there be an integrated set of guidelines addressing fish, water, and wildlife or should there be guidelines for each Program within MOE?

2. Can there be a province wide guidelines or does each region or ecoregion need it's own?

3. At whom should guidelines be directed?

4. How concise or how detailed should guidelines be?

DEFINITION OF GUIDELINES

The Webster dictionary definition is, "an indication of outline (as by government) of policy or conduct." Some additional thoughts on guidelines definition may help to focus the dis-

cussion and simplify the task of writing guidelines. Guidelines must identify who is doing the guiding and who is to be the user of the guidelines. Guidelines are not to be confused with interpretations and prescriptions. Interpretations are technically driven evaluations of land, based on land attributes. Capability and present suitability are examples of interpretations. Prescriptions are the specific instructions made by land managers and they specify what activities will occur at an operational level on a given piece of land. Prescriptions can be based on interpretations but must be tailored to the specific characteristics of the land and the management objectives. Guidelines can be used to specify objectives and are based on interpretations and lead to improved land management prescriptions. Each piece of land and each proposed management activity on that land call for flexibility which cannot be built into guidelines. Guidelines are not rules.

Guidelines are a form of education and those proposing guidelines should have a clear understanding of where they wish to go. This workshop will have to consider whether the guidelines should be aimed at the strategic or operational planning level.

PLANNING AND GUIDELINES

As background for the issue of planning level for the guidelines I would like to clarify what I see as the link between strategic level planning (the topic of yesterday's workshop (Travers et al. 1989)) and operational guidelines. Most simply, strategic planning defines objectives over a large area and operational guidelines indicate how to achieve the objectives. Ideally issues such as old-growth or riparian management zones must be solved at the strategic level and above that at the policy level before guidelines can be formed. Put another way, operational guidelines can not solve strategic issues. Table 1 is an idealized diagram of how Ministry of Environment planning could be related to guidelines for habitat management.

Wildlife appears to need this reasonably complex process to establish objectives whereas fisheries do not. This may be due to the clear and simple objectives of fisheries habitat management: "no net habitat loss". Wildlife habitat management objectives must be based on a species or preferably a host of species, as "good" management strategies for one species are often detrimental to another. The species choices drive the habitat management choices.

These are some ideas on guidelines put forward to promote discussion.

KEYNOTE ADDRESS

J. Walker
(Director Wildlife Branch, Victoria)

Putting together guidelines is a positive and important experience, however, rigid guidelines and court actions won't protect habitat. We need to sell sincerity to get sustainable development and public respect. Industry needs to be brought into the process early and the public should be involved to make industry accountable.

Wildlife guidelines must be for all species. It is a much more complicated process than creating fish guidelines. The main priority must be diversity, not just the maintenance of deer, elk and moose. It will be a challenge to make it work. We need a positive approach!

A REVIEW OF EXISTING HABITAT MANAGEMENT GUIDELINES

COASTAL FISHERIES/FORESTRY (CFF) GUIDELINES

T. Chamberlin
(Habitat Management, Recreational Fisheries Branch, Victoria)

The guidelines process began in B.C. in the 1970's when there was increased cutting due to the Tree Farm Licenses (TFL's) awarded in the 50's. The guidelines that emerged were the P-1 (Protection) guidelines (Forest Service 1972). Isolated revisions of the guidelines began to cause problems as the standardization among districts broke down. The Parksville Carnation Creek Follow-up Technical Workshop was convened in 1983 with the intention of pulling together all available knowledge and acceptable practices. It was at this meeting that the need for a stream reach classification system was defined. Industry was involved in the process and thus had a greater commitment to the results. A major block in the process in 1985/86 was overcome by the formation of a steering committee with higher authority which included industry (Council of Forestry Industries - COFI), Department of Fisheries and Oceans (DFO), MOE and Ministry of Forests (MOF).

Implementation of the CFF guidelines began in the winter of 1986. To date there have been 15 workshops addressing approximately 1000 people at a cost of $150,000. A proposed second pass will address equipment operators and fallers. This is under development and will be a series of stand alone educational packages for industry. In addition all colleges will be given curriculum material this winter.

The content of the CFF guidelines include:

a) Stream reach classes based on fish values. They include capability if in an approved management plan.

b) High value locations based on the maintenance of productive capacity. Other locations focus on channel integrity and downstream impacts.

c) There is a strong incentive for industry to devise better (cheaper) ways to meet the stated objectives.

d) The content is open to revision (eg MOF road specifications were added to the second edition), but the structure remains in place as the accepted process.

e) There is explicit exclusion of other resource values, but no conflict with them. Mechanisms of overlay are being developed.

There are a number of supportive information systems for the CFF guidelines. SISS -- Stream Information Summary System

MRS -- Ministry Referral System

Stream Survey Data Base (Biophysical)

GIS - Geographic Information System (both VAX based and PC based)

By August, 1989 there will be a 1:250,000 base map (GIS) from the Ministry of Crown Land and the TRIM program (1:20,000) will be available over the next 5 - 10 years.

In summary, the CFF Guidelines is a document with less than 10 pages of guidelines and half a page of objectives. It is being implemented coast-wide. It is supported by COFI and government and rather than being merely a technical document, it attempts some attitude adjustment.

Discussion: In some areas the CFF guidelines are being used from memory. This makes the education process even more important. The workshops and seminars have solved problems of interpretation and can educate the operators as to the goals of the guidelines. How they are reached may vary from operation to operation at the discretion and due to the creativity of the operators.

Small forest companies are not even aware of the CFF guidelines. MOF should flood logging camps with information on tape about guideline objectives.

INTERIOR FISH/FORESTRY GUIDELINES

R. Morley
(Habitat Management, Recreational Fisheries Branch, Victoria)

There are 4 issues related to guidelines.

1. How far can you go with guidelines?

The work load for staff of the Wildlife and Recreational Fisheries Branches has been increasing dramatically in the last few years and we have been unsuccessful in getting increased staff and funding. Therefore, we probably need to go completely to guidelines so that our staff will not have to oversee every logging plan at the operational level.

2. What have we learned from the Coastal Fisheries/Forestry Guidelines process?

We learned that the actual writing or technical part of the guidelines is the easy part. The most frustrating thing is coopting industry to agree to them. It took us three years on the coastal guidelines. Industry will be looking for major tradeoffs and they will insist on dealing with our senior staff. Senior industry commitment to the guidelines is our enforcement of them. Be prepared to put lots of staff time into guidelines and lots of effort into training once the guidelines have been written.

3. What are the benefits and shortcomings of guidelines?

The benefits of guidelines include uniform rules across a large geographical area which insures fairness to operators since everyone is playing with the same rules. Guidelines help to educate industry operators. They promote innovative methods by the industry to achieve basic principles and they should save us staff and money.

The disadvantages are that guidelines take a lot of time and money to produce, certain issues must be traded off to industry and they reduce our flexibility. They tend to simplify more complex biological issues and they probably won't go as far as we would like. Guidelines tend to address operational issues rather than cumulative effects such as rate of cut.

4. Where are we going?

There has been talk about interior guidelines at the senior levels for some time. The coastal process was so positive (even the news media called it "Good Government") that there is a lot of momentum for interior guidelines. If we want guidelines we should capital-

ize on this. We could do the interior guidelines in one year, but it will be a much slower process to include wildlife and water at the same time.

The October 4, 1988 meeting at Van Deusen concluded that Interior Fisheries/Forestry Guidelines are needed. The CFF can be used as a template with revision of the stream reach classification for the interior as well as a lakeshore management system.

Discussion: Should wildlife guidelines be integrated with the interior fisheries/forestry guidelines? The fisheries people intend to begin discussions with industry in the spring which will culminate in the interior fisheries/forestry guidelines. The wildlife people could begin at the same time to create an integrated guideline. There is support for some sort of wildlife guidelines.

Water guidelines are also a major issue and could be integrated into the guidelines package. There are guidelines on community watersheds at present. Use of the term "guideline" was criticized. The term is misleading as it is actually an educational tool to help develop a more positive attitude toward wildlife/timber relationships. We need to begin educating now and write guidelines later. Currently there is no legislation protecting mature timber. Our policy now revolves around successional stage management, but old growth management policies are long overdue.

Wildlife and forestry have more potential conflicts than fish and forestry. We need to know what our objectives are in order for wildlife guidelines to work.

DRAFT OKANAGAN TSA GUIDELINES

D. Jones
(Habitat Protection Biologist, Penticton)

The Okanagan Timber Supply Area (TSA) guidelines were initiated about four years ago with the intent to put together one guideline package that would address fish, water and wildlife. Representatives from the Forest Industry, MOF, Ministry of Environment (MOE) (Fish and Wildlife and Water) and Department of Fisheries and Oceans (DFO) met to discuss terms of reference for operational guidelines for the Okanagan TSA.

These guidelines are not meant as a cookbook to address all fish or wildlife concerns. The package was to be "user friendly", kept simple and cover situations commonly encountered by our field staff. We do not address caribou or grizzly bear habitats in our guidelines, but hope to in the future. We are still in the process of identifying important habitats for those species in the TSA. We have an ongoing telemetry program for our caribou and Tony Hamilton is helping us with grizzlies.

We had to make tradeoffs to encourage industry cooperation. For instance, a guideline for old growth was initially included, however, it was removed at the request of other committee members who felt industry would not accept any of the guidelines if old growth was part of the package. Until such time as MOF have identified inoperable areas, old growth will not be dealt with.

The land base for the Okanagan TSA was divided into five zones. They are:

1. Integrated forest management zone,

2. Community watershed zone,

3. Winter range zone

4. Riparian management zone,

5. Lakeshore zone (within 200 m of a lake).

INTEGRATED FOREST MANAGEMENT ZONE

This zone constitutes the bulk of the TSA. The dominant consideration is the maintenance of the timber resource, although other resources are addressed through the following:

a) Cutblock size, shape and pattern. Clear cut openings to average 30 ha or less per cutting permit, with maximum individual size of 50 ha and with a maximum downslope width of 400 m.

b) A definition of contour logging and where it can be used. Contour logging is a series of strips with an average width of 250-300 m or less. Strips can be of unlimited length, broken with wildlife corridors where necessary.

c) Partial cutting.

The guidelines for cutblock pattern, timing and sequence of clearcutting are:

1. No more than 30% of the forested area within a watershed shall be in a non-greened up state.

2. The second pass cannot occur until there is green up. Greenup is defined as 3 m of conifer regeneration.

3. 20% of the mature size cover should be maintained and dispersed throughout each planning cell.

4. For those streams where the Riparian Management Zone guidelines do not apply, we use standards such as a 20 m no machine buffer, the avoidance of disturbing stumps and root systems embedded in the banks, and the maintenance of the integrity of buffers in post harvesting treatments.

The wildlife consideration for the Integrated Forest Management Zone was to ensure habitat diversity. The assumption made was if we maintain or encourage habitat diversity we maintain or encourage species diversity as well. We also meet forage and cover requirements for featured species

THE WINTER RANGE ZONE

This zone recognizes other resource requirements, however, the dominant consideration is for the maintenance of the wildlife resource. The intent is to utilize harvesting to maintain or enhance forage production by spreading it out evenly over the rotation in as many passes as possible. You must recognize that old growth for snow interception is not an issue in the Okanagan, but it is important for species diversity. I do not think old growth for species diversity will be a problem in the short term.

The winter range guidelines apply to approximately 50,000 ha of **productive** forest land or 2.2% of the entire Okanagan TSA. Over 75% of the winter range is in types that would likely be selectively logged.

We used the old Canada Land Inventory (CLI) for our winter range classifications. With the exception of moose, we have not found many discrepancies. We used the CLI only because we do not have biophysical mapping.

Early in this process I recognized that we were not managing our limited elk or sheep ranges any differently than deer winter ranges in this TSA. There are specific habitat requirements that are different and need to be addressed on a site specific basis, however, we decided to lump rather than split. Some of you may criticize this approach, however, I feel comfortable with it at least for now. We have some of the highest deer harvests and hunting success rates in the province.

a) cutblock size and shape -- i) clear cuts should be varied in size with a 5 ha maximum size, ii) 40% cover and 60% forage, iii) selective logging -- we originally defined what was to be left after harvesting (the residual stand), however, we have now adopted the principles described in the MOF pamphlet, "Logging on Mule Deer Winter Range, A Guide for Loggers" (Ministry of For. N.D.). The handbook (Armledder 1987) was not used simply because our winter ranges are considerably different than those in the Cariboo. Generally ours have a higher shrub biomass and a greater number of forage species. Snow depths are generally less, hence snow interception is less critical.

Since we are never going to be a large moose producer, we did not spend much time on this section. I went through a number of guideline packages addressing moose requirements and came up with constraints that I think are adequate.

COMMUNITY WATERSHED ZONE

The community watershed zone recognizes all resource values although the dominant consideration is the maintenance of the water resource.

a) cut block size, shape and pattern --reduced block width on south and southwest slopes in the snow pack zone.

RIPARIAN MANAGEMENT ZONE (RMZ)

The fisheries section has had a number of rewrites ranging from 400 meter opening along streams with no concurrent openings, to a forested buffer left on both sides and we would decide later what we harvest from these buffers.

The last proposal was a Riparian Management Zone for identified streams. We are fortunate that in the Okanagan TSA most larger streams have gazetted names and we did not have to get into a stream classification system. The RMZ for the purposes of our guidelines includes the riparian area and an additional 20 meters of upland vegetation and

would extend upstream until the channel width diminished to 0.6 metres. Within the RMZ the following applies:

1. Leave sufficient merchantable timber necessary to retain 75% of the summer midday shade of the water surface existing prior to harvest and 2. within the RMZ, 50% of the pre-harvest crown closure should be maintained.

We have allowed up to 1000 meter cut opening with 400 meter reserves. Cut block pattern generally avoids concurrent openings on opposite sides of streams.

LAKESHORE ZONE (200 m of Lakeshore)

We were able to categorize all lakes within the TSA. We ended up with three categories based upon, degree of use, angler effort, productivity, recreational value, aesthetic value, and hydrologic importance.

We involved the Research Officer of the Recreation program in three Forest Districts to get their input and support. Guidelines were then developed for each lake category. They address 1) logging methods, 2) roads, landings and skid roads, and 3) landscape management.

SPECIAL WILDLIFE CONSIDERATIONS

Wildlife Trees: When we put together our wildlife tree guidelines we were advised that as long as a tree had any green growth it was not considered a snag under Workman's Compensation Board (WCB) regulations. These trees are now called danger trees by WCB and are subject to the same falling requirements as a snag. The alternative guideline we have suggested is to maintain islands of wildlife trees within the harvest area in which all classes of snags are represented and evenly distribute these islands over as much of the harvested area as possible. We did not address wildlife trees in any clearcut situation.

The guideline package also addresses roads (field layout, construction, maintenance and deactivation), skid roads (location, construction and rehabilitation), landings (construction and rehabilitation) and fireguards (location and width, construction, rehabilitation and alternate guarding methods). These activities may all cause soil disturbance which is the single most important factor affecting water quality.

Discussion: Integrated guidelines will work if the strategy is to protect habitats rather than individual species. For instance, fish and water will be protected through a riparian land management plan which protects streams and associated habitats.

Guidelines must be tied to defensible objectives. The CFF guidelines will be tried for 5 years. If they work, then we will form a regional plan. Wildlife guidelines will be much more complex.

KOOTENAY TSA GUIDELINES

A. Soobotin
(Habitat Protection Biologist, Nelson)

In the Kootenay Region we are approaching TSA planning and guidelines from the strategic rather than the operational planning level. In addition we are trying to get the MOF to do the habitat mapping necessary to proceed. The guidelines for each logging operation will fall out of the habitat classes mapped in each area, given the overall strategy suggested by the Wildlife Branch. This strategy defines the area requested in each habitat class, the % in each biogeographical zone; it gives specifications concerning height and crown closure and distribution by area. In addition, the retention of 10% of old growth is suggested for diversity.

The MOF has been provided with all the mapping criteria needed. These include elevation, aspect, slope, and habitat class. The habitat classes have been defined and described and general logging guidelines have been attached to each class (Soobotin 1988).

PESTICIDE GUIDELINES

S. von Schuckmann
(Pesticide biologist, Recreational Fisheries Branch, Victoria)

Today I will discuss 6 sets of guidelines which are relevant to the theme, "Managing through Guidelines -- How Far Can You Go?". For each one I will present its purpose, origin, and how effective it is. All except one set of guidelines are written primarily for fisheries and fisheries habitat protection. Protection of wildlife habitats is generally incidental through protection for riparian areas for fish.

1. Handbook for Pesticide Applicators and Dispensers (Ministry of Environ. 1987). Chapter 23.

In this province, the handbook and in particular Chapter 23 are the main guidelines for environmental protection during pesticide use. The guidelines were produced by the B.C. Pesticide Control Committee and are continuously revised. They are widespread in distribution and use in the province and therefore effective.

The main reason for the effectiveness of the guidelines is that they are delivered to the user as part of a course designed to prepare pesticides applicators for a certification exam. The educational package in which the guidelines are presented also includes a slide tape show produced by the Environmental Protection Service (EPS). In addition, the guidelines are also reiterated in our comments to the Pesticide Control Branch (PCB) on individual permit applications and form the basis for permit conditions which are enforceable by the Pesticide Control Act.

The most valuable section in the guidelines for aquatic and riparian habitat protection is the "10 m pesticide free zone" adjacent to watercourses. Yet, in a recent revision of the handbook the PCB unilaterally changed the description so that only wetted areas were protected. Because of the importance of many seasonally wetted areas as fish habitat the PCB has agreed to rework the definition to include protection of those areas as well. This incident points out the importance of a consensus approach to guidelines development with all concerned groups.

2. Coastal Fisheries/Forestry Guidelines. Silvicultural Sections.

The CFF guidelines go beyond those in the applicators handbook because they give direction for dealing with vegetation control by mechanical means in riparian areas. This was an area previously not addressed.

Stream classes are also related to herbicide use but guidelines given are not as self contained as for other activities because they defer to PCB on many issues. That agency has the legislated mandate to ensure reasonable pesticide use.

Even though there remains a need for site specific reviews for pesticide use within 10 metres of water, classification of streams in coastal areas will reduce the number of field inspections required. As more and more streams are classified, office reviews of such requests should be sufficient in many instances.

While the guidelines have not yet been in use long enough to be fully tested, they show considerable promise for saving time and silvicultural work adjacent to streams.

3. "Aerial Spray Guidelines"

The "Aerial Spray Guidelines" were produced by the PCB. They are fairly general in content. The Fisheries and Wildlife Branches (F & W) have developed a more detailed version. Portions of these guidelines are routinely reiterated as conditions of pesticide use permits and thereby set a standard for aerial application of pesticides in B.C.

4. "Velpar Use Guidelines"

Velpar Use Guidelines were developed by the Ministry of Forests in consultation with PCB, F&W, and EPS. They were produced in response to offsite movement of hexazinone products. While these guidelines have reduced the amount of offsite movement considerably, traces of hexazinone movement continue to be detected. The offsite movement noted would likely have little impact on fish or wildlife. Therefore these guidelines have gone a long way to solving this problem.

5. "Standard Guidelines for Monitoring the Impacts of Herbicides on Wildlife Browse"

There is little known about the impacts of herbicides on wildlife browse. Balfour (1987) has reviewed the available literature and summarized the impact of herbicides on some important browse species recognized in B.C. Considerable effort is being made by a number of regions to generate information for habitat management strategies. Regional staff have requested that a standard method for monitoring guidelines be developed so that data produced will be of high quality and if possible comparable across the province. A draft version of the guidelines has been written and field tested this season (Ministry of Environ. 1988a). Revisions will be made this winter so that the next draft of the guidelines is available for the upcoming field season. MOF has expressed an interest in the work as well.

6. Guidelines for Herbicide Use in the Vicinity of Furbearer Habitat.

The need for these guidelines was identified by PCB, Trapper's Association of B.C. and MOF. There have been a number of land use conflicts regarding this issue in the last few years. Part of the problem appears to be a need for education of what is in fact important furbearer habitat so that forestry staff will know how to avoid potential problem areas. A contract has been let for development of a problem analysis and sample set of guidelines for beaver habitat to be completed by the end of this fiscal.

In summary, there are a number of guidelines that have been developed for pesticide use in BC. They have been developed by different agencies in response to general and specific problem areas. Their effectiveness is due to the following:

1. Agency and/or user consensus in development,

2. Use of guidelines as the basis of education packages leading to certification, and

3. Incorporation of guidelines into pesticide use permit conditions.

SEISMIC EXPLORATION GUIDELINES

B. Churchill
(Habitat and Wildlife Biologist, Fort St. John)

The petroleum industry has a big impact and big bucks. They dislike regulations and lack advanced planning.

Canadian Hunter was hired as a consultant for six months. Their guidelines (Keller 1988) reduce technically complex questions to yes and no answers. They identify sensitive areas which don't need special attention and therefore reduce the number of referrals.

It is not clear if their mandate is to protect habitat, diversity, fish or fowl?

The basic questions are, Who uses guidelines?, How far do we go? and What gets the job done?. We need to educate people and to monitor the guidelines. There is a need for a strategy to address the Petroleum Industry and the direction they are taking. We need the support of the executive!

WILDLIFE TREE GUIDELINES

N. Wilkin
(Planner, Wildlife Branch, Victoria)

CURRENT STATUS

Wildlife Trees have gained some standing in the government agencies administering forest lands. There is a wildlife tree policy in MOF which enables us to continue posting Wildlife Tree Signs and encourages MOF to include Wildlife Trees in forest management. There is a draft wildlife tree policy in the wildlife program (Appendix C). A $9,000 research proposal was submitted to Wildlife Habitat Canada to a)organize information on wildlife species requirements for wildlife trees for major habitats in B. C., b) develop innovative alternatives to snag retention, c) develop a set of guidelines for habitat planning that explain wildlife tree management fundamentals and suggest management alternatives to maintain sufficient wildlife trees. In addition, there is a clause in the Coastal Fisheries/Forestry Guidelines (Par. 2.5.8 of the reference guide) regarding the retention of wildlife trees in class I and class II stream reaches. It states:

> The Streamside Management Zone may include protection of snags, where compatible with Workers' Compensation Guidelines, or leaving of non-merchantable trees as a future supply of snags in L.O.D. In addition, non-merchantable conifers or alders may have to be retained in the streamside zone to provide nest sites for cavity nesting birds and perching, or nest sites for raptors.

ACTION TO DATE

There has been no action to date except that the WCB has changed their regulations as they relate to wildlife trees **and danger trees**. The change is not positive.

> No worker can work within one tree height of the snag **or any live tree** within striking distance. (Worker's Compensation Board 1988 Sect. 23.2.4)

According to a memo from Dave Jones, Sept. 26, 1988, this effectively prevents reserving wildlife trees in selectively logged areas.

SUGGESTED ACTION

1) Hold a meeting in Jan/Feb 1989 with the Wildlife Tree Committee.

2) Enlist the help of Tory Stevens, under Mike Fenger's direction, to finish draft policy.

3) Schedule meeting with WCB to review their guidelines, as they are now open for review.

4) Jim Walker is to inform the MOF Executive of the importance of snags and the problems of the new WCB regulations. Apparently the MOF is having as much of a problem with them as we are!

INTEGRATING COASTAL GRIZZLY BEAR AND INDUSTRIAL FOREST DEVELOPMENT

A. Hamilton
(Research Biologist, Wildlife Branch, Victoria)

(Not presented at the workshop due to lack of time)

The research base for my comments today is now six years old and is from the Kimsquit, Khutzeymateen, Klinaklini, Toba and more recently, with the help of the Forest Resource Development Agreement (FRDA), the Kingcome, Phillips and Kilbella watersheds. In addition I have been involved in the development of numerous 5 and 20 year plans throughout the coast and have provided some input into the midcoast TSA. Five major impacts of logging on grizzly bears have been identified.

1. Access -- this includes access by legal and illegal hunters and those who kill bears in self-defense.

2. Garbage -- bears which have become habituated to human foods have lower survivorship.

3. Amount and distribution of cut across landscape and through time -- cutting patterns affect habitat diversity, productivity, and cause fragmentation. High rates of cut and successful intensive silviculture have the potential to produce vast areas of even aged, sterile understory "plantations" from the original forest mosaic.

4. Alteration and/or destruction of critical habitats -- estuaries, skunk cabbage swamps, sedge fens, salmon spawning areas, wet productive avalanche chutes.

5. Avoidance/Alienation/Displacement

Our intent is to produce two management documents. Currently we are struggling with the split between strategic and operational planning. The first document focuses on the TSA, Tree Farm Licenses (TFL), and 20 year planning levels. Unlike some people, I do not believe integrated management means that all resources must be co-managed on every hectare of ground. Instead, we will push for a spectrum of bear habitat management priorities. At the preservation end, we will promote a kill free, protected, habitat core (such as the Khutzeymateen). At the other end of the spectrum, will be watersheds that have been shot out and have low capability to support viable populations of grizzlies because of high human access, second pass logging, and/or low salmon productivity.

To ensure that there is an allowance for long-term deferral of grizzly habitat at the 20 year and 5 year levels, we will push for some kind of % reduction in the Annual Allowable Cut (AAC) during **both** the TSA and TFL analyses. We currently have a magic 2% in the Sunshine TSA. I'm anxious to hear the results of mid- coast analysis where Marty Beets (Habitat Protection Biologist, Cariboo subregion) and staff outlined important bear habitat for 48 of 88 compartments. We had earlier attempted a strata (rather than area) based summary for the Midcoast and failed miserably. Our failure was due to floating definitions of economic accessibility, fictional area to volume conversions, and other statistical "jig-gery-pokery".

Having a watershed priority system and an allowance for bear habitat in the AAC, we will then implement our handbook (similar to that produced by H. Armleder (1986) for mule deer) to ensure protection of critical habitats at the 5 year and cutting permit stages.

Recent experiences have convinced me that the guidelines we produce must be flexible enough to be placed in the context of a particular development. In other words, the value of any habitat unit depends on the amount and availability of alternates in the vicinity. However, having said that, the guidelines will be rigid enough to try to ensure that the original diversity of opportunity is not compromised. Our objectives are both to minimize impact by protecting habitat by long term deferral and extended rotation and by promoting methods of harvest designed to maintain food productivity post logging, despite loss of the coniferous tree canopy. Scheduling and cut and leave patterns will be a big part of our product. There is also a possibility that we may include some enhancement techniques, but the only viable method of habitat improvement we've come across so far is hack and squirt on pole-sized alder and I'm not convinced I want to promote further herbicide use. Artificial spawning channels are possible but risk attracting both bears and hunters. Prescribed fire is inappropriate except for the extreme south coast.

Some key points about the grizzly bear guidelines are:

1. We will promote diversity on a home range basis rather than for an entire watershed.

2. We will attach high bear habitat value to all stands beside stream class 1 in the fisheries/forestry guidelines. They are the only commercially forested units where we have evidence that indicates "critical" habitat value. There is also a close tie between the coho rearing areas and spring habitat, in addition to the importance of spawning areas.

3. We will concentrate on providing tools useful during the 5 year development plan field tour with recommendations for road and block layout, harvest method, and silviculture. We are getting some interesting results from our herbicide investigations.

4. All prescriptions will use the same habitat classification in place for the Preharvest Silvicultural Prescriptions (PHSP) -- the Biogeoclimatic Ecosystems Classification (BEC) system -- modified to include seral areas and disclimaxes.

5. We will be pushing to have bear habitat values by ecosystem association in MOF site guidelines for tree species selection, harvest method etc. It would be just a brief description of value and then perhaps a tie back to our handbook, particularly for high value commercial stands. We will push for these prescriptions spelled out on the PHSP.

6. The whole concept of area-based management is crucial to these animals. Seventy-five percent of their active season is on the floodplains in a broad range of stand ages and types. I'm looking forward to updating our products if and when the Forest Resource Analysis System (FRAS) (1988) gets adopted.

HANDBOOKS AS GUIDELINES

HANDBOOK FOR TIMBER AND MULE DEER MANAGEMENT COORDINATION ON WINTER RANGES

H. Langin
(Wildlife Biologist, Cariboo)

(not presented at the workshop due to lack of time)

Mule deer need old growth Douglas-fir on south facing slopes for winter range in the Cariboo region. During the 1960's, logging practices changed from faller selection to clear cutting which created a conflict with mule deer over their winter range. Through the referral process there have been attempts to limit logging on mule deer winter ranges. In addition, there have been attempts to create guidelines, however, their testing and application are difficult.

Research began in 1981 to assess winter habitat selection of deer in the Cariboo and to provide information to help resolve the deer/forestry conflict. The Interior Mule Deer - Timber Research Committee was formed by Harold Armledder. This led to the development of the handbook (1986) based in part on early research results and in part on the existing understanding of deer needs.

The stated purpose of the handbook is to provide forest and wildlife managers with the information necessary to coordinate mule deer and timber management on deer winter range. It is targeted at both managers and technicians. For managers it will be helpful in developing and coordinating resource plans for winter range, and for technicians it is useful for field assessment and inspection of logging operations.

The logging companies and the Ministry of Forests were reluctant to allow complete exclusions of timber. When the winter ranges were mapped, the impact on the AAC was about a 56,000 ha exclusion for the mule deer. The handbook provided a "ready made" compromise position. After the application of the handbook principles, there were still about 56,000 ha with a long term deferral, but this was more palatable to the logging companies as most of the ranges were still part of the "managed" (MOF) land base.

Although the handbook provides a ready made compromise, its validity as an operational handbook has not been completely established. Validation has been difficult.

The handbook project was very expensive ($35,000 - 40,000). The MOF produced the handbook. They have also administered operation trials of the handbooks logging systems. As a result, the handbook has had the support of the Ministry of Forests at the regional and district levels. I believe it is far more effective as a Ministry of Forests handbook than it would have been as a Ministry of Environment effort.

DEER AND ELK HABITATS IN COASTAL FORESTS

I. McDougall
(Habitat Protection Biologist, Nanaimo)

(not presented at the workshop due to lack of time)

DEVELOPMENT OF STRATEGIC COASTAL WILDLIFE GUIDELINES

The first consideration in the development of strategic guidelines is whether they are going to be general or species specific. On the coast, considerable effort has already been given to the Integrated Wildlife Intensive Forest Research (IWIFR) Deer/Elk ecology handbook and therefore specific guidelines are being developed as an off-shoot of that project.

Additional support for the development of guidelines will come from the MOE policy on diversity.

STEPS IN DEVELOPING DEER/ELK MANAGEMENT GUIDELINES

1. Identify ministry goals and objectives.

2. Identify regional wildlife objectives.

3. Classify the land base according to categories of wildlife habitat.

4. Consider use of regional habitat classes for defining wildlife habitats.

5. Refer to management strategies for each particular habitat class occurring in each of the 4 snow zones

6. Establish which areas can be negotiated for trade-offs and which are non-negotiable.

7. Establish links between low and high capability areas similar to the link between class 4 and class 1 streams in the CFF guidelines. An example is what constraints are required for high elevation summer forage and cover in relation to lower elevation winter ranges and spring forage areas.

8. Consider applicability of deer/elk guidelines to cover other species.

9. Base guidelines on research results.

10. Restrict actual guidelines to 10-15 pages but include support documents if necessary. Have industry support.

11. Profile guidelines to hold companies accountable.

12. Have guidelines supported by ministry executive and MOF.

13. Allow guidelines to be user-friendly and subject to revision.

HABITAT HANDBOOK

A. Harcombe
(Habitat Research Specialist, Wildlife Branch, Victoria)

(not presented at the workshop due to lack of time)

The wildlife habitat handbook project will provide two sets of products for each of the nine ecoprovinces in British Columbia. Demarchi's (1989) 1:2,000,000 map delineates these ecoprovinces. First, it will include information about habitat requirements of specific vertebrates and secondly, it will provide a series of models for long-term tracking of habitat suitabilities based on simple species-habitat relationships.

There are approximately 900 models in the prototype handbook (Harcombe, In press). The habitat classification system follows the habitat classification complexes of the provincial system as used in regional wildlife plans (Ministry of Environ. 1989). These models can easily be made more sophisticated for featured species or when more detailed digitized databases become available. The system is designed to "red-flag" significant decreases in species populations based on projected supply of habitat.

The strengths of the handbook are the range of species included and the diversity of habitats represented by these species; the use of the provincial habitat classification system; the ease with which it can be tied to wildlife Geographic Information System (GIS) prototype proposals, and the way in which it relates habitats to forest cover and biogeoclimatic units.

The handbook, however, is not without weaknesses. The mapping prototype lacks habitat detail such as snags, cliffs, etc., though they are included in the models (Harcombe, In press). The handbook ties suitability value to population numbers and required habitat in only a simplistic fashion based on perceived minimum population and home range sizes. Quantified data on habitat requirements are unavailable for many species and thus estimates of habitat requirements are used. The handbook also requires a significant change in habitat inventory before a significant change in population is reflected by the models. And finally, it does not simulate habitat succession. These changes presently must be entered manually.

To make the handbook a more useful tool, we need to establish population viability limits. In addition, there is a need for a scale or geographical unit in which to manage for diversity.

When comparing the handbook to guidelines such as the CFF guidelines it is useful to keep the following in mind:

1. the prototype handbook has approximately 900 models (in one-ninth of the province only),

2. there are 120 habitat classes recognized in the wildlife plans provincially. Four stream classes have been recognized in the CFF guidelines.

3. there are 100 species of management concern and 30 game species, (provincially) and

4. whereas the fish guidelines aim at "no net loss", we are already below the minimum population for viability for some species.

The handbook project will produce good information from models. What is not clear is how good the strategic planning matrix will be in which this information can be used. We must establish some "objective" baseline parameters for managing for wildlife diversity that we can couple with our surplus parameters for wildlife quantities above and beyond a baseline. The habitat handbook project will not produce guidelines, however, it provides outputs that could be used as major input in guideline development, especially for non-game wildlife.

THINK TANK SESSION

M. Fenger -- Moderator

A GENERAL DISCUSSION

IS THERE A COMMITMENT TO GENERATING GUIDELINES?

Generally there was a consensus that habitat guidelines were worthwhile. The definition of a guideline was not clear although under any definition their preparation would be educational. Also, there is support for guidelines outside of government, for example, in Prince George industry has approached the Ministry of Environment to ask for environmental/forestry guidelines.

WHAT ARE GUIDELINES?

There are different points of view on what habitat guidelines are, and what their scope should be. Habitat guidelines are the standards we expect the industry to live up to. Habitat guidelines also are an educational tool. It is important during implementation and revisions to keep this aspect going with meetings, discussions, and active educational processes. Should guidelines be regional, provincial, or tailored for each TSA? The requirements for mature timber for wildlife habitat vary dramatically from the north to the south and from east to west across the province. Should new guidelines continue the coast/interior separation that has been operational up until now. Should guidelines be for strategic planning or operational or both?. At the strategic planning level there are guidelines such as A. Soobotin's (1988) TSA guidelines where the responsibility of locating habitat classes is transferred to the MOF. Approval of the guidelines at the strategic planning level will be more difficult for wildlife than it was for fish. Managing successional forest habitats is easy compared to "managing" mature timber. The Fisheries program may request a 1 1/2% reduction in the AAC, but the wildlife program will need a 5-10% reduction in the AAC to protect some of the old growth forest habitat needed for wildlife such as caribou, mule deer and many non-game species.

The CFF guidelines and the Okanagan TSA guidelines became operational in 1988.

Development of guidelines must occur from the "top down" and from the "bottom up" simultaneously.

INTEGRATED ENVIRONMENTAL GUIDELINES OR SEPARATE GUIDELINES FOR FISH, WILDLIFE AND WATER?

In favor of integrated guidelines are the following arguments:

1. In nature, many species favor habitat in the riparian zone where the fish, wildlife and water values are already integrated.

2. The referral system is integrated.

3. It is less confusing for the licencees to have one set of guidelines than to have to confer over three or more sets.

4. It would probably be preferable to industry to come together for meetings about one set of guidelines rather than try to get them to the table three or more times.

5. Water (low-flows) problems and fisheries needs are closely tied in the interior. Guidelines have already been developed for community watersheds.

There are several arguments against integrating wildlife, fish and water in one set of environmental guidelines.

1. The CFF guidelines would be relatively easy to adapt and apply to the interior.

2. There is still momentum from finishing the CFF training process.

3. Tentative industry/government meetings are scheduled for the spring of 1989. An integrated approach might mean a delay in getting started.

4. Guidelines for fish alone would be simpler and therefore take less time to develop than an integrated guideline.

TIME COMMITMENT REQUIRED

The CFF guidelines were a formidable time consuming task, stretching over five years. To succeed with a guidelines project requires a major commitment of staff time. Some portions of a guidelines exercise could be contracted out, however, even if money for contracting is available, there will still be large demands on regional and headquarters staff. This requires not doing some of our present tasks or an increase in staff which is unlikely.

SCHEDULING DISCUSSION

DFO and Recreational Fisheries in Victoria are ready to meet with the forest industry in the spring. A stream classification subcommittee was struck to look at adapting the coastal classifications to the interior. Concerns were expressed by the regional staff over entering into discussions with the industry and MOF prior to agreement on the wildlife habitat classification. There needs to be agreement within MOE on an approach. This is a job for a habitat guidelines technical committee.

SUMMARY OF THE DISCUSSION

1. A need for guidelines exists and they should be integrated environmental guidelines.

2. Guidelines should be operational, independent of the solving of strategic level issues prior to implementation.

3. Ideally, strategic levels of planning should occur. Hence the guidelines should have an operational focus.

4. Producing guidelines represents a significant additional workload.

5. There is a need for scheduling the guidelines preparation process to facilitate the integration of fish, wildlife and water needs.

TASKS TOWARD DEVELOPMENT OF HABITAT GUIDELINES

[Editor's note: Some of these tasks were clarified after the workshop.]

1. Form committees to drive the guidelines process. Three levels of committees are suggested. They are:

a) Ministry of Environment Steering Committee - Program Directors, DFO, Industry. The steering committee would be struck once internal agreement had been reached on a practical approach to habitat guidelines.

Walker, Narver, Kasinenchuk, ...

b) Environmental/Forestry Guidelines (EFG) Technical Committee

Membership to come from Victoria and regional staff representing wildlife, water and fish programs as follows: (1 or 2 from each)

	Wildlife	Water	Recreational Fisheries
Victoria			
Regions			

c) Habitat Guidelines Committee (Wildlife). The purpose would be to get consensus on the approach to habitat guidelines that the Habitat Protection Biologists would support prior to involvement by industry. M. Fenger was named to get this committee started.

2. A list of suggestions from the workshop participants on the tasks that needed to be done by the committee included the following:

a) Summarize the program goals from the provincial species plans (Appendix D).

b) Summarize the regional wildlife plan objectives and the strategies for managing each habitat class.

c) Collect and organize all existing operational guidelines from the Pacific Northwest and assemble by ecoregion.

d) Assess the implications of the CFF guidelines model to wildlife. Analyse its format and determine its applicability i.e., organized according to logging activities.

e) Do a task analysis including how much money and staff time is required to accomplish this task. Identify possible funding sources.

f) Develop a strategy to write wildlife guidelines. Is it the same as CFF guidelines? As TSA guidelines?

g) Review wildlife handbooks as guidelines.

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APPENDIX A

GUIDELINES WORKSHOP BACKGROUND REPORT (CONTENTS)

GUIDELINES PACKAGE
BACKGROUND FOR THE GUIDELINES WORKSHOP
NOVEMBER 9, 1988 -- KAMLOOPS

TABLE OF CONTENTS

1. Revised Guidelines Workshop Agenda

2. Fish/Forestry Guidelines
B.C. Coastal Fisheries Forestry Guidelines, 1988.

Watershed workbook. D. J. Wilford. 1987.

Minutes of the Ad hoc workshop to explore the potential usefulness of Interior Fish/Forest guidelines. 4 October, 1988, Van Dusen Gardens (includes a list of other guidelines being assembled by D.F.O.)

3 Riparian Zone Guidelines
D. Hamilton - memo.

4. Wildlife Guidelines -- Provincial
P-1 Clauses, 1972.

Guidelines for the Protection of Wildlife Habitat in B.C., 1975.

Summary of Lower Mainland Wildlife/Forestry Guidelines. G. Carlsen, 1988.

Fish and Wildlife Habitat Protection Guidelines for the Petroleum Industry in the South Peace River Deep Basin Area of North-Eastern B.C. D.A. Keller, 1988.

Okanagan Timber Supply Area Integrated Resource Management Guidelines for Timber Harvesting, 1988. (Complete document in the TSA Planning Package)

Handbooks as Guidelines

Deer and Elk Guidelines
Deer and Elk Habitats in Coastal Forests of Southern B.C.: A Handbook for Forest and Wildlife Managers. A Summary of Proposed Content. J.B. Nyberg, E.L. Richardson and R.S. McNay, 1986. (sample)

Brochure of the above handbook: IWIFR Program.

Handbook for Timber and Mule Deer Management Co-ordination on Winter Ranges in the Cariboo Forest Region. Land Management Handbook No. 13. H.M. Armleder, R.J. Dawson and R.N. Thomson, 1986. (Sample)

Brochure of the above handbook: Logging on Mule Deer Winter Ranges, A Guide for Loggers.

Wildlife Habitat Handbook, A. Harcombe. In Progress. (sample

Grizzly Bear Guidelines

Coastal Grizzly Bear Guidelines. A. Hamilton, 1987. (Example. Handbook due in 1989-90)

Caribou

Recommendations for Logging Mountain Caribou habitat in the Quesnel Highland B.C. M.L. Beets and D.E. Russel, 1976.

High Elevation Guidelines for Timber Harvesting Within the Quesnel Highlands of B.C. to Protect Sensitive Wildlife. J.A. Young and M.L. Beets, 1980.

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Protection and Management of Raptor and Cavity Nesting Bird Habitat on Crown Lands -- Letter to D.T. Grant, B.C. Forest Service, Burnaby. D.C. Morrison and S.M. Janz, 1983.

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5. Wildlife Guidelines -- Outside British Columbia

Washington

Management of Wildlife and Fish Habitats in Forests of W. Oregon and Washington. E. Reade Brown, Tech. Ed., 1985. (Sample)

Oregon

Wildlife Habitats in Managed Forests. J.W. Thomas, Tech. Ed., 1979. (Sample)

Fish and Wildlife Habitat Protection Criteria for Forest Lands. Oregon Dept. of Fish and Wildlife, 1986. (Revised and expanded edition due out in Nov. 1988)

Montana

Road Management Policy, Montana Fish and Game Commission, 1982.

Idaho

Guidelines for Evaluating and Managing Summer Elk Habitat in Northern Idaho, T.A. Leege. 1984. (sample)

APPENDIX B

BRANCH PROGRAM GOALS

WILDLIFE BRANCH (from Munro 1979)

1. To maintain the diversity of species representative of the major biophysical zones of the province, and

2. To ensure that, within the constraints of land capability and biological limits of each species, wildlife is available in sufficient abundance to meet the recreational and economic needs of society.

RECREATIONAL FISHERIES (from Ministry of Environ. 1988)

GOAL

To provide desirable levels of social, economic and recreational benefits to the people of British Columbia through conservation, management and use of fresh water fish, fisheries and habitat.

OBJECTIVES

1. To maintain and enhance habitat which will support natural and cultured populations of fish.

2. To provide abundant and diversified recreational opportunities while protecting desireable populations of fish.

3. To support and regulate uses of fish, for social and economic benefits.

In addition, there is functionally a fourth objective: To provide the support to program and corporate activities required to achieve the goal and three objectives.

Munro, W.T. 1979. Proposed wildlife management plan for B.C. Fish and Wildlife Branch, Ministry of Environ., Victoria, B.C.

Ministry of Environ. 1988. Recreational Fisheries Program Report 1987-88. Program Evaluation June 13, 1988. Recreational Fisheries Branch, Victoria, B.C.

APPENDIX C

DRAFT WILDLIFE TREE POLICY

VOLUME	SECTION	SUBSECTION	PAGE
4	7	05.02	1 OF ?

SUBJECT

The Management, Conservation, and Creation of Habitat Required by Tree Dependent Wildlife

This policy replaces:

None

Staff, Organizations directly affected:

Wildlife Program
Wildlife Management Staff
Regional Fish and Wildlife Managers
Habitat Management Staff
Ministry of Forests and Lands
- Integrated Resource Management Branch
- Silviculture Branch
Workers' Compensation Board
Logging Companies
Public (Recreationist, Firewood cutters)

Policy statement:

IT IS THE POLICY OF THE MINISTRY

1) to provide sufficient habitat for tree dependant species including cavity nesters, raptors, and other designated species through the identification, protection, and creation of wildlife trees;

2) and to implement this policy in both the coastal and interior regions of B.C. through the application of the following guidelines;

GUIDELINES:

These Guidelines are consistent with the following legislation;
Wildlife Act (B.C.), sections 4 and 5
Ministry of Forests Act (B.C), sections 4b and 4c
Convention for the Protection of Migratory Birds (1916)
Ministry of Environment Act
Forest Act, section 88
Workers' Compensation Board Act
Constitution Act, section 92.5
Migratory Birds Convention Act
Canadian Wildlife Act, section 3e

INTERIOR REGION

1. - encourage Pre-Harvest Silvicultural Prescriptions (PHSP) as required by MOFL which consider MOEP guidelines for wildlife tree management, particularly in cases of thinning and aerial herbicide application.

2. - maintain and manage variable size patches (25-150 hectares) of mature and old-growth forests (100-400 years old) during the rotation. These tracts should comprise at least 10% of the forest and be well distributed throughout the forest licence area to maintain maximum bird diversity.

3. - Manage for one clump of 15 closely spaced wildlife trees over 30cm (12") d.b.h. on every 2 hectares (5 acres) to provide islands or groups of live trees or snags in clearcut units to protect wildlife nesting, foraging, and food storage habitat.

4 - within riparian zones maintain patches of deciduous and coniferous trees 30 to 90m wide for cavity nesters.

5. - hard snags or cull trees should be left for recruitment of future soft wildlife trees.

6 - consider leaving high tree stumps, during WCB required snag falling, for species such as white-headed woodpeckers that will use short trees. These stumps will also provide foraging sites.

7. - retain live trees with heartrot and or broken tops to accelerate wildlife tree creation in managed stands.

8 - maintain, throughout the intensively managed forest, large snags, or defective (cull) live trees (38-60 cm d.b.h. or greater) at various stages of deterioration to supply cavity-user needs in succeeding forest rotations. (target 2-5% of forest)

9 - leave undisturbed all deciduous trees having natural cavities or cavities excavated by woodpeckers for use by secondary cavity nesters.

10. - in areas open to woodcutting, encourage permit system which restricts woodcutters to down materials or standing trees less than 20 cm d.b.h. upslope from road systems.

11 - emphasize wildlife tree management in areas downslope from road systems to protect trees from firewood cutting.

12 - when burning slash, utilize protective measures where necessary to retain wildlife trees selected for wildlife habitat.

COASTAL REGION

13. - initiate and keep current an inventory of nest locations, particularly for raptors and herons.

14. - limit disturbance around nests during nesting season.

15. - where logging occurs down to the beach a 300m unlogged buffer area is recommended around all identified nest trees.

16 - retain 10% of the mature shoreline forest (100m inland from high water mark) in an undisturbed state for future generations of wildlife trees.

17. - include wildlife trees, particularly identified nest trees, in leave areas during planning phase. When nest trees are encountered within a logging area they are to be protected, and if they are subject to removal, the local Fish & Wildlife Office should be contacted.

18. - maintain raptor perching habitat in the vicinity of identified nest trees, by retaining any decadent wildlife trees and/or a minimum of four vets.

19 - retain a 300m buffer zone of unlogged timber adjacent to nest trees.

20 - in areas where blow down may be a problem the most desirable trees to be retained are those at the coastline, as these are more likely to be wind tested and hence windfirm.

21 - it is recommended that a 1.6 km buffer strip be maintained between handlogging sales. If a handlogging sale is applied for adjacent to a large conventional logging clearcut area, a mile leave area should be retained on either side of the logged area.

Definitions:

"Snags" - include dead (or near dead) standing trees which can be grouped into 5 classes according to amount of decay (see appendix).

"Hard Snag" - see appendix

"Soft Snag" - see appendix

"Wildlife Trees" - are those trees required by tree dependent wildlife and includes both snags and live trees which may have low timber value. These include trees used for nesting and perching.

"Suitable Habitat" - includes both A) identifiable individual trees, (as used by eagles, ospreys, and herons) and B) areas of selected habitat types containing a desirable proportion of wildlife trees (for species which forage and/or nest in a dispersed manner over large territories).

"Cavity Nesters" - birds which nest in the cavities of snags or live trees; cavity nesters may either excavate the nest hole themselves (Primary species) or take over an existing cavity (Secondary species)

"d.b.h." - diameter at breast height.

"Designated Species" - species named by MOEP (Director of Wildlife Program).

"Riparian Zone" - the stream bank and flood plain adjacent to streams or water bodies, with particular reference to the vegetation.

"Vet" - large mature conifers often characterized by broken or deformed tops with large lateral branches. (MOFL tree class #5 or #2 [suspect with dead or broken top]).

Reasons for Policy:

1) to facilitate the management of tree dependent wildlife species, such as raptors, cavity nesters and other designated species.

2) to preserve and where necessary create sufficient habitat for cavity nesters and other designated wildlife species.

APPENDIX D

PROVINCIAL SPECIES STATEMENTS

SPECIES/SPECIES GROUPS	LEAD AUTHOR
1. Threatened and Endangered	B. Munro
2. Deer	I. Hatter
3. Moose	I. Hatter
4. Elk	R. Demarchi/D. Janz
5. Caribou	R. Ritcey
6. Mountain Sheep	D. Demarchi
7. Mountain Goat	B. Harper
8. Grizzly Bear	F. Tompa/B. Warkentin
9. Black Bear	F. Tompa/B. Forbes
10. Wolf	F. Tompa/R. Archibald
11. Bobcat, Coyote, Fox, Raccoon	B. Saunders
12. Cougar	P. Dewar
13. Lynx	D. Hatter
14. Rodents - Furbearers	K. Morrison
15. Mustelids	K. Morrison
16. Rodents - Non-furbears	C. Dodd
17. Raptorial Birds	B. Munro
18. Swans	B. Churchill
19. Canada Goose	B. Munro
20. Brant, Snow, White-fronted Goose	D. Wilson
21. Ducks	B. Munro
22. Upland Game Birds	R. Davies
23. Forest and Grassland Birds	B. Gates
24. Reptiles	C. Dodd
25. Amphibians	C. Dodd
26. Bats	C. Dodd
27. Hares, Rabbits and Pikas	C. Dodd
28. Moles, Shrews and Marsupials	C. Dodd

APPENDIX E

LIST OF WORKSHOP PARTICIPANTS

VICTORIA
- Ray Travers
- MikeFenger
- Andrew Harcombe
- Bruce Pendergast
- Nancy Wilkin
- Sylvia von Schuckmann
- Tony Hamilton
- Ron Kot
- Tom Chamberlin
- Ric Morley
- Jim Walker

PRINCE GEORGE
- Dave King

PENTICTON
- Dave Jones

WILLIAMS LAKE
- Herb Langin
- Marty Beets
- Marcel Demers
- Daryll Hebert

CRANBROOK
- Rob Neil

SMITHERS
- Brian Fuhr

KAMLOOPS
- Kathy Stuart
- Phil Holman
- Sandy MacDonald

FORT ST. JOHN
- Brian Churchill

NELSON
- Al Soobotin

INVERMERE
- Dennis Hamilton

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